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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,993	04/21/2004	Harold Alexis Huggins	HUGGINS 7	5503
47396	7590	04/19/2006	EXAMINER	
HITT GAINES, PC AGERE SYSTEMS INC. PO BOX 832570 RICHARDSON, TX 75083			LIE, ANGELA M	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/828,993

Applicant(s)

HUGGINS, HAROLD ALEXIS

Examiner

Angela M. Lie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-33 and 35 is/are rejected.
- 7) ☒ Claim(s) 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Tan Ho
TAN HO
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 29 is objected to because of the following informalities: the applicant failed to define where the semiconductor substrate is placed; therefore last line of claim 29 does not exhibit clear limitation. For the purposes of the examination, the examiner considers the structure having a plurality of openings on opposing sides of the patterned conductive layer and through the RF component at least to the substrate. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 29-31, 33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Krishaswamy et al (US Patent 5853601).

As to claim 29, Krishaswamy discloses a radio frequency (RF) component comprising: a dielectric layer (Figure 5F below, element 103) having opposing first and second major surfaces, the first surface being free from a semiconductor substrate (semiconductor is etched away, leaving air gap behind), the dielectric layer having a plurality of openings (Figure 5F below, element 113) extending between the first and

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second opposing major surfaces; and a patterned conductive layer (Figure 5F below, elements 105 and 109) on the second major surface of the dielectric layer (Figure 5F, element 103), wherein the plurality of openings (Figure 5F, elements 113) are on opposing sides (as shown in the figure below) of the patterned conductive layer (Figure 5F, element 109) and through the RF component at least to the semiconductor substrate (Figure 5F, element 101).

As to claim 30, Krishaswamy discloses the method wherein forming the plurality of openings comprises forming the plurality of openings (Figure 5D, element 113) comprises forming the plurality of openings in a predetermined pattern (before anything is manufactured, the outline has to be predetermined, therefore those openings are considered to be in a predetermined pattern).

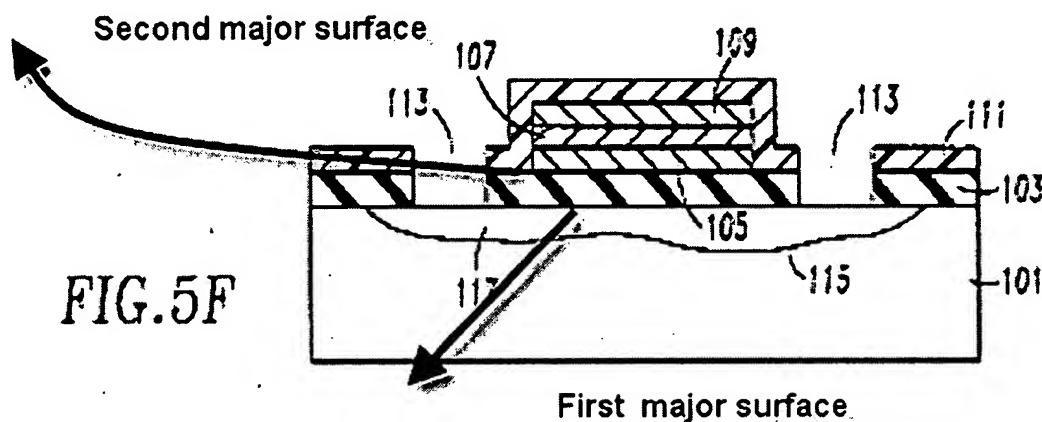
As to claim 31, Krishaswamy discloses the method, wherein the predetermined pattern has substantially uniform spacing between adjacent openings (as shown in figure 5D).

As to claim 33, Krishaswamy discloses the method wherein forming the at least one opening comprises forming the at least one opening to have a diameter in a range of about .5 to 20 μm (column 6, lines 44-46, since the thickness of dielectric (Figure 5D, element 103) is about 1 μm , just by looking at the ratios or proportions of the elements in respect to each other, one can clearly see that diameter of the opening is approximately 2-3 microns).

As to claim 35, Krishaswamy discloses the method wherein forming the at least one opening (Figure 5D, element 113) comprises forming a plurality of openings (Figure

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5D, first opening through element 111, and second opening through element 103) comprises forming a plurality of openings laterally adjacent portions of the conductive layer with no openings extending through the conductive layer (as shown in Figure 5D, elements 105 and 109 do not have any openings).



Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krishaswamy et al (US Patent 5853601). Krishaswamy discloses the claimed invention except for substantially uniform spacing being in a range of about 20 to about 200 microns. It would have been an obvious matter of design choice to change the spacing

length from 10 microns as taught by Krishaswamy (ratio relation from the drawings) to about 20 to 200 microns, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). Furthermore the other important thing to note is the fact that the spacing between the openings does not change the functionality of the device. The only limiting factor in making the spacing very large, is the etching process, i.e. if spacing is too large it might be very hard to etch Silicon substrate completely under the dielectric layer.

Allowable Subject Matter

6. Claim 34 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose the RF component as disclosed in claim 29, wherein each opening has respective rounded over edges adjacent the first and second major surfaces.

Response to Arguments

8. Applicant's arguments filed February 10, 2006 have been fully considered but they are not persuasive. With respect to the applicant's assertion on pages 5 and 6 last paragraph stating that Krishaswamy does not anticipate a plurality of openings on

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opposing sides of the patterned conductive layer and through the RF component at least to the semiconductor substrate, the examiner disagrees with the applicant. As the result of the unclear content of claim 29 as specified in the above objection, the examiner's interpretation of the above described feature might deviate from the original intended limitation. However, to the best of examiner's knowledge, Krishaswamy does anticipate all the features disclosed in claim 29. For more details regarding rejection, please look at the above paragraphs.

The Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent 6093330 discloses a microfabrication process for enclosed microstructures comprising conductor, openings and substrate, wherein the etching is performed through the openings.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiry


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. Lie whose telephone number is 571-272-8445. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Angela M Lie



TAN HO
PRIMARY EXAMINER